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TRANSMITTAL OF APPEAL BRIEF (Large Entity) (SECOND SUBSTITUTE)	Docket No. 2130 (FJ-99-12)

In Re Application Of: **Bruce J. Kokko**

Application No.	Filing Date	Examiner	Customer No.	Group Art Unit	Confirmation No.
09/456,270	December 7, 1999	S. Alvo	4256	1731	

Invention: **METHOD OF MAKING ABSORBENT SHEET FROM RECYCLE FURNISH**

COMMISSIONER FOR PATENTS:

Transmitted herewith in triplicate is the **Second Substitute** Appeal Brief in this application, with respect to the Notice of Appeal filed on **November 14, 2003**

The fee for filing this Appeal Brief is: ~~$330.00~~ — No fee believed due

☐ A check in the amount of the fee is enclosed.

☐ The Director has already been authorized to charge fees in this application to a Deposit Account.

☒ The Director is hereby authorized to charge any fees which may be required, or credit any overpayment to Deposit Account No. **50-0935**

Michael W. Ferrell

Signature

Dated: **August 9, 2004**

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CERTIFICATE OF MAILING BY FIRST CLASS MAIL (37 CFR 1.8) Applicant(s): **Bruce J. Kokko**			Docket No. **2130 (FJ-99-12)**	
Application No. **09/456,270**	Filing Date **December 7, 1999**	Examiner **S. Alvo**	Customer No. **40256**	Group Art Unit **1731**

Invention: **METHOD OF MAKING ABSORBENT SHEET FROM RECYCLE FURNISH**

I hereby certify that this **3 copies of 2nd Substitute Brief on Appeal, w/Appendix A & Exhibit 1 & postcard**
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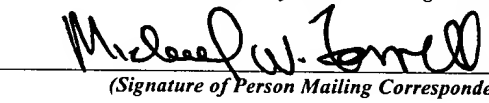

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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of:	:	
Bruce J. Kokko	:	Examiner: S. Alvo
U.S. Serial No. 09/456,270	:	Group Art Unit: 1731
Filed December 7, 1999	:	
Docket No. 2130 (FJ-99-12)	:	
For: METHOD OF MAKING ABSORBENT SHEET FROM RECYCLE FURNISH	:	

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SECOND SUBSTITUTE BRIEF ON APPEAL

Sir:

Applicant submits herewith, in triplicate, its *Second Substitute Brief on Appeal* in the above-noted United States Patent Application in response to the Notice of Non-Compliance mailed July 27, 2004. That *Notice* provided as follows:

> Upon further review of this case was found that Applicant has not argued all the rejections as set forth by the Examiner. The rejections are alternative rejections one based on formulation A and the other on formulation B. Applicant has argued these rejections together, e.g. formulation A and formulation B, as if they were the same rejection. See Page 5, last paragraph of the Brief where Applicant states the rejection is formulations A and B in view of Osborn, III and Back et al. This is not correct the rejections are formulation A in view of Osborn, III and Back et al; or formulation B in view of Osborn, III and Back et al. These are two separate rejections, not a single rejection as argued by Appellant.

The Tables in the Brief and attached Declaration only compare formulation A with the instant invention, they do not compare formulation B with the instant invention.
The Brief does not list these alternative rejections as separate issues.

Applicant addresses specifically herein the items noted in the July 27th *Notice* as well as the issues raised by way of the final rejection in this case.

1. REAL PARTY IN INTEREST

Fort James Corporation, 1650 Lake Cook Road, Deerfield, Illinois 6015, a subsidiary of Georgia-Pacific Corporation is the real party in interest in this patent application. The Assignment was recorded at Reel 010705 / Frame 0120 on March 27, 2000.

2. RELATED APPEALS AND INTERFERENCES

There are no related appeals or interferences known to Applicant or its legal representatives which will affect or be affected by or having a bearing on the Board's decision in this case.

3. STATUS OF CLAIMS

Claims 1-5, 7-10, 13-15, 18-20, 31-35 and 56-61 are pending in this application. A complete listing of the *Claims on Appeal* is provided in Appendix A hereto.

4. STATUS OF AMENDMENTS

An *Amendment* was filed on January 20, 2004 correcting claim dependencies, only. That *Amendment* was entered February 6, 2004.

5. SUMMARY OF INVENTION

The present invention is an improvement in tissue and towel manufacture which involves treating the fibrous material with a surfactant composition of 25 to 60 weight percent nonionic surfactant and the remainder of quaternary surfactant. The nonionic surfactant components are of specified types and have a specified **HLB** value which depends upon the chain length of the hydrophobic portion of the nonionic surfactant. The observed synergy is especially useful for

recycle fiber where tensile reduction, which correlates with tissue softness, is important. *See* specification as filed, page 5, line 1 and following. *Note also*, Exhibit 1, THIRD DECLARATION OF BRUCE J. KOKKO, paragraph 2:

> 2. That the invention of the above-noted patent application resides, in part, in the discovery that nonionic surfactants having specific HLB values can be combined with quaternary surfactants to make debonding compositions exhibiting unexpectedly enhanced ability to provide tensile reduction in absorbent sheet manufacture. The invention thus enables the use of less quaternary surfactant to achieve a given tensile reduction, for example, or enables more tensile reduction with a given amount of quaternary surfactant. These features are particularly significant in the manufacture of absorbent sheet from recycle furnish and/or where the amount of cationic charge addition which can be tolerated in a papermaking process is limited. Oftentimes the addition of cationic species such as quaternary surfactants is limited in a papermaking machine as a practical matter by operating problems such as plate-out when the cationic content goes too high. Thus, prior to the invention of this application, there was a significant need to reduce quaternary surfactant levels required for a given level of tensile reduction. As can be seen from the data which follows, such results are readily achieved by way of the invention.

Claim 1 is illustrative of the subject matter on *Appeal*:

> 1. In a process for making an absorbent sheet material from a web of fibrous material consisting of 100% by weight cellulosic recycle material, the improvement which comprises treating the fibrous material with a debonding composition which includes a synergistic combination of:
>
> (a) a quaternary ammonium surfactant component which includes an imidazolinium salt; and
>
> (b) a nonionic surfactant component present in said debonding composition in an amount of from about 25 to about 60 weight percent based on the combined weights of said nonionic surfactant component and said quaternary ammonium surfactant component;
>
> wherein said nonionic surfactant component comprises a surfactant selected from the group consisting of group c, d or e and wherein group:

(c) are monoalkylated nonionic surfactants comprising alkoxylated fatty acids or alkoxylated fatty alcohols having an **HLB** value of greater than about 10 wherein said fatty acids and fatty alcohols have 12 carbon atoms or more;

(d) are dialkylated nonionic surfactants comprising alkoxylated fatty acids or alkoxylated fatty alcohols with an **HLB** value of greater than about 10 wherein said fatty acids or fatty alcohols have about 16 carbon atoms or more;

(e) are dialkylated nonionic surfactants comprising alkoxylated fatty alcohols or alkoxylated fatty acids having an **HLB** value of less than about 10 and wherein said fatty alcohols and fatty acids have about 16 carbon atoms or less;

wherein further the debonding composition is operable to reduce the tensile strength of said sheet by at least about 25 percent by application to said recycle fibrous material at a treatment level of 1 mole of said quaternary ammonium surfactant component per ton of recycle fibrous material.

6. ISSUES

The issues on *Appeal* in this case are whether one or more of the groupings of claims are nonobvious over acknowledged prior art formulations in further view of United States Patent Nos. 4,351,699 to *Osborn III* and 5,582,681 to *Back et al.* The *Final Rejection* is believed based on hindsight and should be canceled.

No reference discloses synergy between quaternary surfactants and nonionic surfactants as is claimed.

No reference discloses the influence of the **HLB** values and hydrophobic chain length of the nonionic component of a surfactant blend on debonding; the claims are quite specific in this respect, and the results dramatic.

No prior art debonder formulations are recited in any appealed claim.

Particular issues addressed hereinafter are:

1. Whether the prior art teaches the combinations claimed in the independent claims in this case so as to support, *prima facie*, an obviousness rejection;

2. Whether unrecognized features of prior art compositions such as formulations used in Example Series A and B constitute prior art for purposes of §103; and

3. If, *prima facie*, the references support one or more obviousness rejections, whether sufficient evidence to overcome the rejection has been submitted.

The art rejections are discussed separately as to prior art formulations A and B below; in all cases *Osborn III* and *Back et al.* are relied upon by the Examiner, as noted in Sections 8H and 8I, *infra*.

Results of the invention are compared separately with results obtained with formulation A in Sections 8J and 8K of this *Brief*, where superior results are shown.

Results of the invention are compared separately with results obtained with formulation B in Section 8L, where superior results are shown.

As to sufficiency of rebuttal evidence, it is noted that even if a *prima facie* case is made out, "the prima facie case is not a stone wall against which rebuttal evidence is tested; patentability is determined by a **preponderance** of all of the evidence." *In re Glaug*, 62 USPQ2d 1151, 1153 (CAFC 2002). Here, the evidence of nonobviousness is compelling, including the THIRD DECLARATION OF BRUCE J. KOKKO, as well as the data in the specification as filed, including **Figure 2** and **Figure 6** especially.

7. GROUPING OF CLAIMS

For purposes of this *Appeal*, the following claims stand or fall together:

Group I, Claims 1-6, 7-10, 13-15, 18-20, 56-57;

Group II, Claim 31-35;

Group III, Claim 58;

Group IV, Claim 59; and

Group V, Claims 60-61.

8. ARGUMENT

All claims pending in this case stand rejected on the basis of obviousness only.

In the *Final Rejection*, Claims 1-5,7-10, 18-20, 31-35 and 56-61 were rejected as obvious over prior art formulations A or B (IDS 10-15-2001) in view of United States Patent No. 4,351,699 to *Osborn III* and United States Patent No. 5,582,681 to *Back et al.* The July 27, 2004 *Notice* requests that the *Final Rejection* be treated as two separate rejections and are treated as such in the discussion which follows. Formulation A is compared with novel formulations O and P in Sections 8J and 8K below; formulation B is compared with novel formulation P in Section 8K.

Examples A, B and the *Osborn III* '699 reference passages cited in the *Final Rejection* appear below for convenience. *Note* that the Examples using formulations A and B themselves are not prior art since they involve 100% recycle furnish. In any event, all claims on appeal exclude the formulations utilized in Example Series A and B as is noted in the THIRD DECLARATION OF BRUCE J. KOKKO, ¶10, with respect to formulation A. It is also noted formulation B is excluded from independent Claims 1, 15 and 18 because it contains no

imidazolinium salt and from independent Claims 31 and 60 because PEG-6-dilaurate has an HLB value of about 8 (elements c and d of Claims 31 and 60 specifically require an HLB value >10). Thus, neither formulation A nor formulation B fall within the purview of any of the formulations recited in the method claims on appeal, which clearly define over any art cited.

> Example Series A
>
> Example 1 was repeated except with from 3 to 8 #/T of a formulation A containing in part, 75 wt.% of a mixture of 1-(2-octadecenamidoethyl)-2-heptadecenyl-3-methylimidazolinium methylsulfate , 1-(2-octadecenamidoethyl)-2-heptadecenylimidazoline and 10 wt.% PEG-6-dioleate was added between additions of Bufloc 534 and
>
> Bufloc 594. The add-on of the Bufloc 534 was changed for each add-on level of surfactant to keep the final furnish charge neutral. This series of sheet is designated as "A" on Figure 2.
>
> Example Series B
>
> The procedure of Example Series A was followed except that the debonder formulation included 1.9:1 di-(2-hydroxyethyl methyloctadecylammonium chloride:dimethyl-ditallowammonium chloride, formulated with 33 wt.% PEG-6- dilaurate. This series of sheet is designated as "B" on Figure 2.
>
> *Osborn III* '699, Col. 4, lines 32-37:
>
> The quaternary ammonium salt is added to the papermaking furnish at a level of from about 0.5 to about 5.0 grams per kilogram of bone dry papermaking fiber. Preferably, it is added at from about 1.0 to about 2.5 grams per kilogram.
>
> *Osborn III* '699, Col. 4, lines 63-66:
>
> The nonionic surfactant is present in the papermaking furnish at a level of from about 0.5 to about 5.0 grams per kilogram bone dry papermaking fiber, preferably from about 1.0 to about 2.5 grams per kilogram.

The *Back et al.* '681 reference was cited as showing recycle wood pulp.

A. The Art Cited Does Not Suggest The Claimed Combinations

The existence of different claim elements in different references is not a proper basis for an obviousness rejection absent a teaching to combine in the manner claimed. There is no teaching in any prior art suggesting the claimed subject matter.

On the basis of the art noted above, the claims were rejected with the allegation that debonding is an art-recognized, result-oriented parameter. That allegation is untenable because debonding is not a parameter, it is the result sought. The features claimed in this application include nonionic surfactant weight fraction of the surfactant composition employed and its **HLB** value as a function of hydrophobic chain length. These features are composition specifications. As such, they cannot be "optimized" in the sense that reaction conditions or physical properties are optimized because of the well-known unpredictability inherent in the chemical arts.

The legal precedent cited by the Examiner only supports an obviousness rejection where an art-recognized result-effective parameter is involved. *Note* MPEP, §2144.05 II B:

> ***B. Only Result-Effective Variables Can be Optimized***
>
> A particular parameter must first be recognized as a result-effective variable, i.e., a variable which achieves a recognized result, before the determination of the optimum or workable ranges of said variable might be characterized as routine experimentation. *In re Antonie*, 559 F.2d 618, 195 USPQ 6 (CCPA 1977) (The claimed wastewater treatment device had a tank volume to contractor area of 0.12 gal./sq. ft. The prior art did not recognize that treatment capacity is a function of the tank volume to contractor ratio; and therefore the parameter optimized was not recognized in the art to be a result-effective variable.). See also *In re Boesch*, 617 F.2d 272, 205 USPQ 215 (CCPA 1980) (prior art suggested proportional balancing to achieve desired results in the formation of an alloy).

Parameters may include temperature, pressure and so forth, but their optimization is obvious only if they are art-recognized as being result effective. Here, there is no reference which suggests the claimed elements are result-effective.

None of the references disclose or suggest the synergy claimed, nor the importance of **HLB** values. *Osborn III* '699 contains only a cryptic discussion of the utility of blends of ionic and nonionic surfactants, for example at Column 8, line 20 thereof and following:

> Conventional control paper towels were made by the foregoing process except that the papermaking furnish did not contain the quaternary ammonium compound or the nonionic surfactant and the imprinting fabric had a 3-shed weave of 12X10, MD by CD, filaments per centimeter. The paper towels of this invention made from the webs of this invention as made by the process of this invention, when compared to the control paper towels, were found to be significantly more absorbent by objective physical testing and significantly softer by human panel testing.

Given the lack of disclosure of synergy, one of skill in the art is not motivated to utilize the blends of surfactant disclosed in *Osborn III* '699 in a recycle furnish process or any other system for that matter. *Osborn III* '699 does not suggest at all that such blends can be used to reduce tensile 25% or more at addition rates of 1 mol/ton of quat *in recycle furnish* as is claimed in Claim 1. Obviousness cannot be established by combining the teachings of the prior art to produce the claimed invention, absent some teaching, suggestion or incentive supporting the combination. *Carella* v. *Starlight Archery and Pro Line Co.*, 231 USPQ 644, 647 (Fed. Cir. 1986) (citing *ACS Hosp. Syss., Inc.* v. *Montefiore Hosp.*, 221 USPQ 929, 933 (Fed. Cir. 1984). The factual inquiry whether to combine references must be thorough and searching. *McGinley* v. *Franklin Sports, Inc.*, 60 USPQ2d 1001, 1008 (Fed. Cir. 2001). This factual question cannot be resolved on subjective belief and unknown authority, *In re Lee*, 61 USPQ2d 1430, 1434 (Fed. Cir. 2002); lilt must be based on objective evidence of record. Id. 61 USPQ2d at 1434. The U.S. Court of Appeals for the Federal Circuit has stated that the mere fact that the prior art may be modified in the manner suggested by the Examiner does not make the modification obvious unless the prior art suggested the desirability of the modification. *In re Fritch*, 23 USPQ2d 1780, 1784 (Fed. Cir. 1992) (citing *In re Gordon*, 221 USPQ 1125, 1127 (Fed. Cir. 1984). Although this statement is couched in terms of modifying the prior art, a similar one applies to combining teachings found in the prior art. Specifically, the mere fact that teachings found in the prior art could be combined as proposed by an examiner does not make the combination obvious absent

some teaching, suggestion or incentive supporting the combination. *Carella*, 231 USPQ at 647 (citing *ACS Hosp. Syss., Inc.*, 221 USPQ at 933.

B. Reliance On Unrecognized Properties Of A Prior Art Composition Is Impermissible Hindsight

The *Final Rejection* in this application is believed to rely on impermissible hindsight based on previously unrecognized properties of formulations utilized in Series A and/or B. The fact that the formulations may have had unrecognized properties is an improper basis to reject the claims for obviousness. In this respect, *Van Veen* v. *United States*, 156 USPQ 403, 405-406 (Ct. Cl. 1967) is instructive:

> It is incorrect to hold that an invention was obvious when made, simply because the invention is simple in nature and is easily understood when described in a patent specification. Experience has shown that some of the simplest advances have been the most nonobvious. The prior art, in addition to the Daiber '380 patent mentioned above, cited by the defendant, provides a prior art base which renders the distinctions between the prior art and the subject invention even more significant. None of the prior art cited by defendant copes with the problem of heat loss through the peripheral seams of the sleeping bag.
>
> Defendant says that under the rule of General Electric Co. v. Jewel Incandescent Lamp Co., 326 U.S. 242, 247-49, 67 USPQ 155, 157-158 (1945), it is of no moment that the prior art (particularly MIL-B-830) failed to recognize that seams of this type would prevent or diminish heat loss. 1 But the Supreme Court has also indicated that "accidental results, not intended and not appreciated, do not constitute anticipation." Eibel Process Co. v. Minnesota & Ontario Paper Co., 261
>
> U.S. 45, 66 (1923); See also Tilghman v. Proctor, 102 U.S. 707, 711 (1880). In the General Electric case, the court found that the new use, advantage, or quality was apparent in view of the prior art (see 326 U.S. at 248, 67 USPQ at 157). **In the present case, it was not obvious to convert the special 30-inch seam of the Military Specification, even though it happened to be insulated, into the overall peripheral sleeping bag seams of the plaintiff's patent. In that respect the unrecognized quality (i.e., heat-loss prevention) inhering in the short seam of the Military Specification was merely "accidental" and no bar.**

Unrecognized features are clearly not teachings of the prior art. In fact, that others have not recognized or appreciated that a material's properties may be put to advantageous use is further evidence of nonobviousness. In this regard, *see Jones et al.* v. *Hardy*, 220 USPQ 1021, 1026 (CAFC 1984):

> That the claimed invention has the asserted advantage in some installations is not actually contested. That the same advantage went unrecognized for years by users of cut foam and other means of forming relief designs in concrete walls argues for, not against, nonobviousness.

The *Final Rejection* in this case is also inadequate because it fails to address each claim element of the inventions claimed in Groups I-V. It was noted in *In re Thrift*, 63 USPQ2d 2002, 2006 (CAFC) 2002, *prima facie* obviousness is established upon objective teachings in the prior art or when knowledge generally available, leads to the claimed invention:

> Prima Facie Case of Obviousness and Claim 1
> To establish a prima facie case of obviousness, the Board must, inter alia, show "some objective teaching in the prior art or that knowledge generally available to one of ordinary skill in the art would lead that individual to combine the relevant teachings of the references." In re Fine, 837 F.2d 1071, 1074, 5 USPQ2d 1596, 1598(Fed. Cir. 1988). "The motivation, suggestion or teaching may come explicitly from statements in the prior art, the knowledge of one of ordinary skill in the art, or, in some cases the nature of the problem to be solved." Kotzab, 217 F.3d at 1370, 55 USPQ2d at 1317.

and that such teachings or knowledge must be applied with respect to **each** element of **each** claim:

> We agree with appellants that the Board's ground of rejection is simply inadequate on its face. The Board sustained the examiner's very general and broad conclusion of obviousness based on his finding that "[t]he use of grammar is old and well known in the art of speech recognition as a means of optimization which is highly desirable." Aug. 7, 1996 Office Action at 5; accord Decision on Request for Rehearing at 6. Although this statement is likely true, it fails to address the grammar-creation capability limitations of claim 11. While the examiner's statement generally addresses the use of grammar, it does not discuss the unique limitations of extracting, modifying, or processing the grammar to interact with hypermedia sources. **The Board's decision is not supported by substantial evidence because the cited references do not support each**

limitation of claim 11. See In re Vaeck, 947 F.2d 488, 493, 20 USPQ2d 1438, 1443(Fed. Cir. 1991).

In re Thrift, at 2008.

Here, the Examiner's dismissal of the evidence submitted in support of patentability is indicative of a failure to address the elements of the claims of the claimed invention. Specifically, in the *Final Rejection* it was noted that less than "about 10" did not exclude 9.8 in the prior art and therefore the evidence was not probative. That conclusion ignores the other limitations in the independent claims which clearly exclude the art cited in the *Final Rejection*.

C. The Group I Claims Are Patentable

With respect to Group I, the independent Claims 1, 15 and 18 all specifically recite that the claimed process utilizes from bout 25-60% nonionic surfactant. The "closest" prior art to the elected species, the compositions used in Example Series A, has only 10% nonionic surfactant. There is no prior art teaching whatsoever to increase nonionic surfactant share in order to enhance debonding. These claims should be allowed for this reason and also because these claims recite recycle fiber, a feature not believed suggested in the art of record in connection with the novel process with more than 25% surfactant share being nonionic surfactant. Indeed the language used in connection with 10% nonionic composition "works best on virgin and mixed" furnishes certainly teaches away from **increasing** nonionic content. In other words – don't use this composition on 100% recycle. It is also shown in the THIRD DECLARATION OF BRUCE J. KOKKO that the Example Series A composition was not effective to reduce tensile 25% at 1 mole of quat per ton, another claim feature not addressed.

D. The Group II Claims Are Patentable Independently From Group I

With respect to Group II, Claim 31 requires certain quaternary salts and nonionic surfactants (c) and (d) wherein (c) is:

(c) are monoalkylated nonionic surfactants comprising alkoxylated fatty acids or alkoxylated fatty alcohols having an **HLB** value of greater than about 10 wherein said fatty acids and fatty alcohols have 12 carbon atoms or more;

and (d) is:

(d) are dialkylated nonionic surfactants comprising alkoxylated fatty acids or alkoxylated fatty alcohols with an **HLB** value of greater than about 10 wherein said fatty acids or fatty alcohols have about 16 carbon atoms or more;

The claimed features are not addressed in the *Final Rejection* and the claims of Group II should be allowed for this reason.

E. The Group III Claims Are Patentable Independently of Groups I Or II

With respect to Group III, Claim 58 is limited to the combinations limited to those including nonionic surfactants having the **HLB** characteristics of (c) and is believed allowable for this reason.

F. The Group IV Claims Are Patentable Independently of Groups I, II Or III

With respect to Group IV, Claim 59 is limited to the combinations limited to those including nonionic surfactants having the **HLB** characteristics of (d) and is believed allowable for this reason.

G. The Group V Claims Are Patentable Independently Of The Claims Of Groups I, II, II or IV

Claim 60 is limited to processes where the fiber treated is predominantly recycle fiber and is believed allowable because the only known combination of the surfactants were promoted to work best on virgin and mixed" furnishes and because the claim also recites features (c) and (d) only above with respect to the nonionic surfactant.

H. None Of The Claims Are Suggested By formulation A In View Of *Osborn III* '699 And *Back et al.* '581

Formulation A has a nonionic surfactant with HLB values different from those recited in any claim and has less nonionic surfactant than is claimed in any independent Claim. Neither *Osborn III* '699 nor *Back et al.* '581 contain any suggestion whatsoever to change HLB values or change proportions to be approximate 25 to 60 weight percent range of nonionic surfactant as is claimed. Moreover, superior results over formulation A are clearly established in the THIRD DECLARATION OF BRUCE J. KOKKO discussed below.

I. None Of The Claims Are Suggested By formulation B In View Of *Osborn III* '699 Or *Back et al.* '581

Formulation B lacks an imidazolinium salt as claimed in independent Claims 1, 15 and 18 and does not have a nonionic surfactant with an HLB value of greater than about 10 as required by independent Claims 31 and 60; specifically formulation B has a C_{12} PEG diester nonionic surfactant with an HLB value of less than 10 and does not overlap with a formulation recited in any claim on appeal. Neither *Osborn III* '699 nor *Back et al.* '581 supply any suggestion to modify formulation B so as to bring it within a formulation recited in a claim.

Furthermore, superior results over formulation B are clearly seen by comparing the data in the THIRD DECLARATION OF BRUCE J. KOKKO with the data in Table 1 of the application as filed, last entry, relating to formulation B. Superior results are also generally shown in **Figures 5** and **6** as to formulation B. This information appears in Section 8L, *infra* as well as section 8J immediately below.

J. Evidence Of Patentability Is Clear In This Application

For the above reasons, it is believed a *prima facie* showing of obviousness has not been made with respect to **any** claim. Even if there were, however, such a *prima facie* showing, that is not a stone wall against which rebuttal evidence is tested. So also, all of the evidence, direct

and indirect, must be considered. In this respect, *In re Grasselli*, 218 USPQ 769, 779 (CAFC 1983) is noted:

> None of the prior art reviewed here, including McClellan, describes a catalyst more similar to that of claim 15 than those described in appellants' claims 6 or 7. Accordingly, that comparison in Table II of Friedrich II which shows that the claim 15 catalyst outperformed the others (i.e., claims 6 and 7) is evidence of unexpected superiority. This comparison, and the conclusion based thereon, is the ultimate extension of the "indirect showing of unexpected superiority" sanctioned by precedent. In re Fenn, 208 USPQ 470, 473 (CCPA 1981); In re Fouche, 169 USPQ 429, 433 (CCPA 1971). Accordingly, the rejection of claim 15 based on McClellan is reversed.

Applicant need only establish patentability by a preponderance of evidence. The evidence here is plentiful and convincing. Consider **Figures 5** and **8** of the present application, reproduced immediately below.

FIG. 5

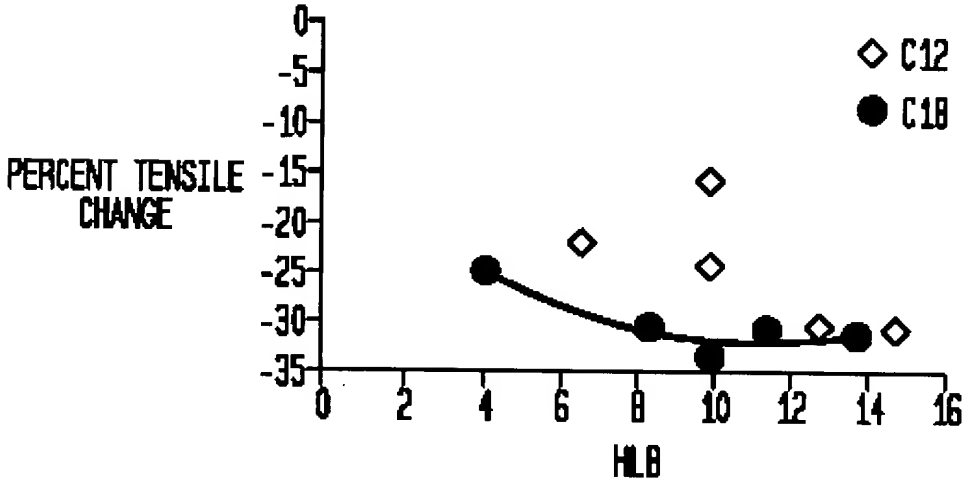
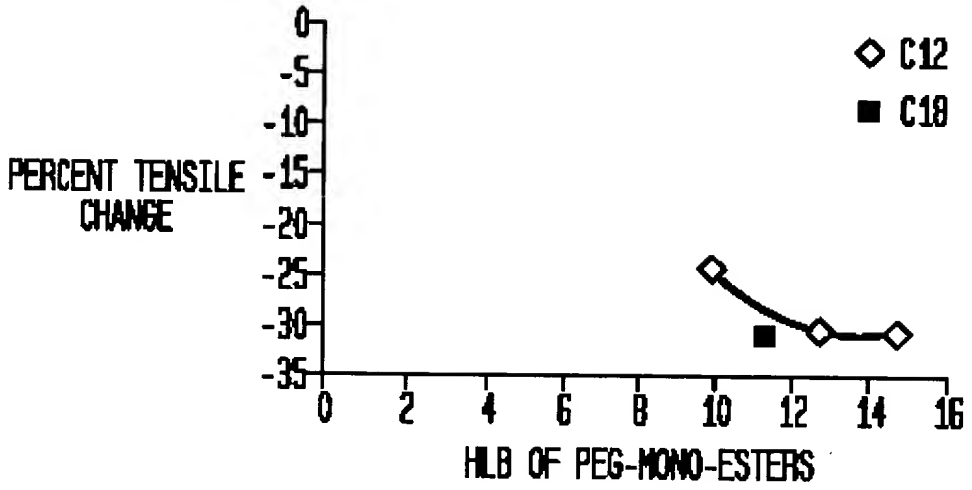


FIG. 8



These **Figures** show that the **HLB** value of the nonionic surfactant used exerts a considerable influence on the amount of tensile reduction, depending on the chain length of the hydrophobic portion of the nonionic surfactant. That relationship enables large tensile reductions, even when using less quaternary surfactant. This is a surprising result explained in the THIRD DECLARATION OF BRUCE J. KOKKO (Exhibit 1) hereto, ¶5:

Debonder formulation	Dosage		aHLB[1]	Fatty Acid Carbon Chain Length of Nonionic Surfactant	Tensile Strength (km)[2]	% Reduction[3]
	Add-On Rate(#/T)	mol Quat/T				
Control	NA	NA	NA	NA	2.7	NA
formulation of Example Series A	6	1.8	9.8	18/13	2.1	23
formulation of Example O	6	1.2	10.7	18/12	1.97	27
formulation of Example P	6	1.4	11.8	18	1.7	37

1) Actual HLB of nonionic surfactant(s) fraction of product.
2) Dry Breaking Length (dry tensile normalized for basis weight
3) Percent reduction in dry breaking length relative to control.

5. That results shown in the above Table show unexpectedly large tensile reductions utilizing the invention as embodied in the formulations of Example O and P as opposed to Example Series A. The formulation of Example Series O has 1/3 less quaternary surfactant than the Example Series A composition, yet exhibits significantly more tensile reduction at the same add-on levels (4/23 or about 17% more). This is contrary to conventional wisdom wherein it was believed that tensile reduction would decrease with decreasing quaternary surfactant usage. One would have expected the formulation of Example O to exhibit significantly less tensile reduction than the formulation of Example Series A and the fact it exhibits more tensile reduction was an unexpected, surprising and very useful result.

K. <u>The Evidence In This Application Clearly Establishes Patentability With Respect To formulation A</u>

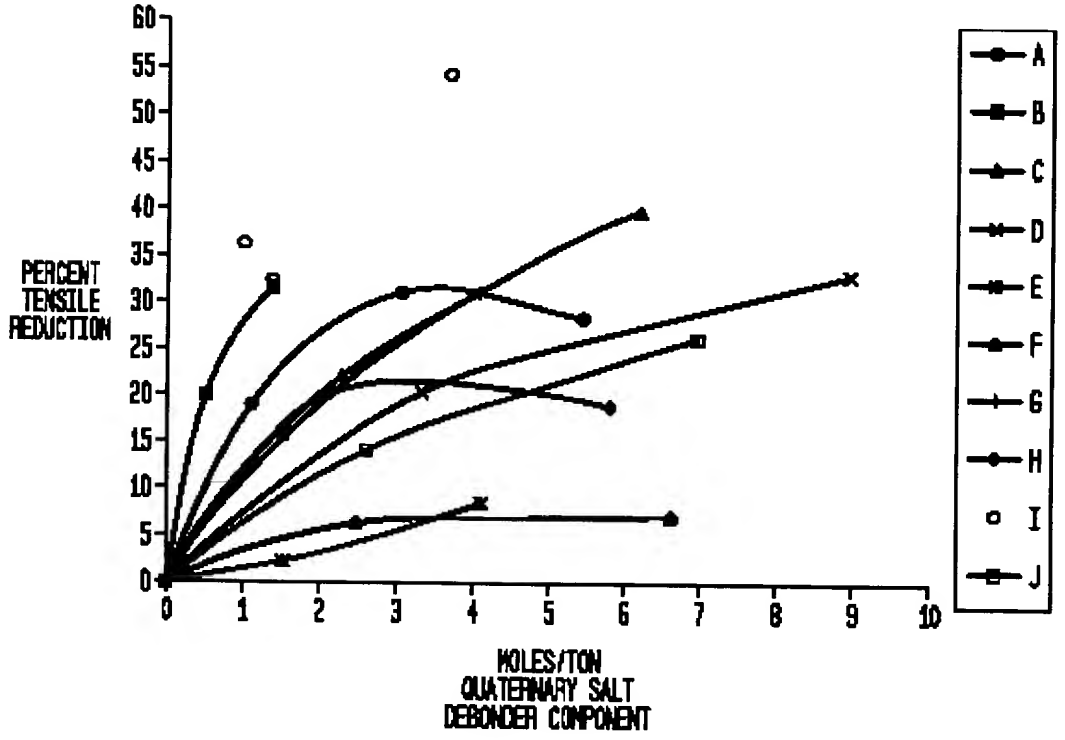
The evidence in the specification and the DECLARATION evidence shows superior and unexpected results with respect to formulation A, which was consistently referred to as the "closest prior art" during prosecution of this application. One can achieve higher debonding levels with (i) less quaternary surfactant at (ii) equal levels of total surfactant due to the synergy of the claimed process. An unexpected, surprising and very useful result. One sees with Example P, for instance, a tensile reduction increase of over 60% (37 vs. 23) with respect to the

Example Series A composition at the same add-on levels on a weight basis and **less** quaternary surfactant. The evidence in the specification and three DECLARATIONS submitted in this case establishes patentability by at least a preponderance; maybe there is enough evidence of record to crack even a stone wall.

Formulation A is also compared with another imidazolinium debonder composition in Example series I. Results are seen in **Figure 2** of the application as filed (reproduced below), it being noted at page 33 that:

> Formulation I, which utilizes the synergy between the imidazolinium quat and the PEG-6-dilaurate debonded as well as B, but at least 50% better than A.

FIG. 2



Thus, superior results as to formulation A (imidazolinium containing compositions) are compelling. Accordingly, the subject matter of the claims of Group I, which all require imidazolinium salts is believed most clearly patentable over Composition A.

L. The Evidence In This Application Clearly Establishes Patentability With Respect To formulation B As Well

Formulation B contains a quaternary ammonium salt surfactant and a laurate (C_{12}) PEG diester with an HLB value of less than 10 (actually about 8). Formulation B is stated in the application to include:

> 1.9:1 di-(2-hydroxyethyl methyloctadecylammonium chloride:dimethyl-ditallowammonium chloride, formulated with 33 wt.% PEG-6-dilaurate

See page 30, lines 25-27 of the application as filed. The formulation does not contain imidazolinium salts and is thus excluded from Group I claims. Claim Groups II, II, IV and V also exclude the composition because they do not include C_{12} diesters with HLB values less than 10.

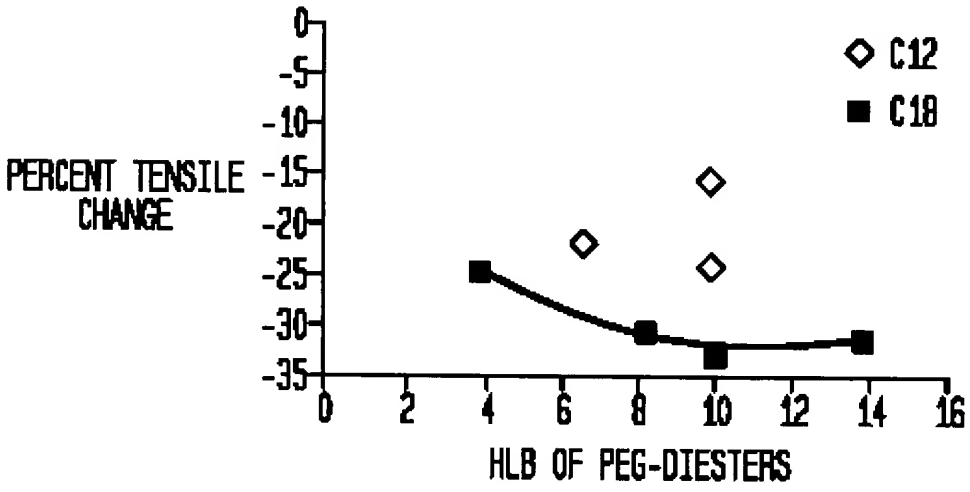
Superior results with respect to formulation B are readily achieved in accordance with the invention as can be seen by comparing the THIRD DECLARATION OF BRUCE J. KOKKO with Table 1 of the application as filed and further by considering **Figure 5** and **Figure 6** of the application as filed.

The THIRD DECLARATION OF BRUCE J. KOKKO contains data at an add-on level of 1.4 mols quat per ton of fiber for formulation P of the invention, whereas Table 1 of the application as filed contains data for formulation B at an add-on level of 1.49 mols quat per ton (0.51 + 0.98). *See* application as filed, Table 1, page 34. Conventional wisdom is that the formulation B example should debond more and show more tensile reduction; however, the tensile reduction is less, 32 v. 37; here again formulation P showing increased tensile reduction (15% better) even at lower quat add-on levels. The data is summarized in the following Table:

formulation	Add-On Mol Quat/Ton	Nonionic Surfactant/HLB Value	Tensile Reduction %	Improvement
B	1.49	C12 PEG Diester/<10	32	--
P	1.4	C18 PEG Monoester/11.8	37	15%+ /mol quat

Furthermore, superior results of the invention as compared with a (C_{12}) dilaurate ester as is used in formulation B are also seen in **Figure 6.** Here it is seen that longer hydrocarbon chain diesters with higher HLB values are preferred over the C_{12} diesters of formulation B:

FIG. 6



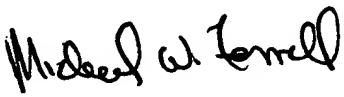
The invention enables a multitude of novel and nonobvious options for reducing tensile and softening tissue paper, not remotely suggested in the art.

9. CONCLUSION

No references suggest the claimed combinations nor the superior debonding options provided by way of the present invention.

For the above reasons, all outstanding rejections should be canceled and this case passed to issue.

Respectfully submitted,



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August 9, 2004

EXHIBIT 1

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of:

Bruce J. Kokko

U.S. Serial No. 09/456,270

Filed: December 7, 1999

Docket No. 2130 (FJ-99-12)

For: METHOD OF MAKING ABSORBENT SHEET FROM RECYCLE FURNISH

Examiner: S. Alvo

Group Art Unit: 1731

Mail Stop RCE
Commissioner for Patents
P.O. Box 1450
Alexandria, Virginia 22313-1450

THIRD DECLARATION OF BRUCE J. KOKKO

Bruce J. Kokko, inventor of the subject matter of the above-noted patent application hereby declares:

1. That he was awarded a Ph.D. degree in Chemistry from the University of Illinois, Urbana, Illinois, in 1983. Since that time he has worked on projects involving chemistry relevant to the manufacture of paper, including sheet useful for making paper towel and paper tissue.

2. That the invention of the above-noted patent application resides, in part, in the discovery ~~that nonionic surfactants having specific HLB values can be combined~~ with quaternary surfactants to make debonding compositions exhibiting unexpectedly enhanced ability to provide tensile reduction in absorbent sheet manufacture. The invention thus enables the use of less quaternary surfactant to achieve a given tensile reduction, for example, or enables more tensile reduction with a given amount of quaternary surfactant. These features are particularly

significant in the manufacture of absorbent sheet from recycle furnish and/or where the amount of cationic charge addition which can be tolerated in a papermaking process is limited. Oftentimes the addition of cationic species such as quaternary surfactants is limited in a papermaking machine as a practical matter by operating problems such as plate-out when the cationic content goes too high. Thus, prior to the invention of this application, there was a significant need to reduce quaternary surfactant levels required for a given level of tensile reduction. As can be seen from the data which follows, such results are readily achieved by way of the invention.

3. That he understands that the data submitted in November, 2002 in this application was deemed insufficient to place this application in condition for allowance because there was no direct comparison of a composition of the invention based on methylimidazolinium quaternary surfactant and PEG dioleate which was a "species" of the invention elected for examination and which components are used in Example Series A (the formulation used in series A being prior art for present purposes) and in Example O of the specification(an embodiment of the claimed invention). Following, the data submitted in November, 2002 is supplemented with tensile results achieved with Formula O, which is a methylimidazolinium/PEG dioleate composition wherein the PEG dioleate has a higher HLB value than the dioleate of Example Series A because it has a longer ethylene glycol chain. Details appear in Paragraph 4 below. Note that the PEG dioleates of Example Series A and Example O are different in that they have different HLB values, but the debonder formulations in both cases are methylimidazolinium quat/ PEG dioleate compositions.

4. That following the procedure of Example 1 of the application, absorbent sheet was ~~prepared: (a) without debonder;~~ (b) with the debonder of Example Series A at an add-on rate of 6 lbs per ton of fiber; (c) with the debonder of Formula O of the application at an add-on rate of 6 lbs per ton of fiber; and (d) with the debonder of Formula P of the application at an add-on rate of 6 lbs per ton of fiber. The quaternary and nonionic surfactant content of Example Series A, Formula O and Formula P are set forth below:

Formulation A: 75 wt.% of a mixture of 1-(2-octadecenamidoethyl)-2-heptadecenyl-3-methylimidazolinium methylsulfate , 1-(2-octadecenamidoethyl)-2-heptadecenylimidazoline and 10 wt.% PEG-6-dioleate and 10 wt.% PEG-6-2-tridecanol.

Formula O: 38 wt% mixture of 1-(2-octadecenamidoethyl)-2-heptadecenyl-3-methylimidazolinium methylsulfate and 1-(2-octadecenamidoethyl)-2-heptadecenylimidazoline, 50 wt% PEG-600-dioleate, 7.3 wt% PEG-400-monolaurate, 3.8 wt% propylene glycol, and 0.8 wt% methyloleate.

Formula P: 44.5 wt% mixture of 1-(2-octadecenamidoethyl)-2-heptadecenyl-3-methylimidazolinium methylsulfate and 1-(2-octadecenamidoethyl)-2-heptadecenylimidazoline, 50 wt% PEG-400-monooleate.

Results of tensile tests on samples of the sheet prepared as noted above as well as HLB values appear in the table below:

Debonder Formulation	Dosage		aHLB[1]	Fatty Acid Carbon Chain Length of Nonionic Surfactant	Tensile Strength (km)[2]	% Reduction[3]
	Add-On Rate(#/T)	mol Quat/T				
Control	NA	NA	NA	NA	2.7	NA
Formulation of Example Series A	6	1.8	9.8	18/13	2.1	23
Formulation of Example O	6	1.2	10.7	18/12	1.97	27
Formulation of Example P	6	1.4	11.8	18	1.7	37

1) Actual HLB of nonionic surfactant(s) fraction of product.
2) Dry Breaking Length (dry tensile normalized for basis weight).
3) Percent reduction in dry breaking length relative to control.

5. That results shown in the above Table show unexpectedly large tensile reductions utilizing the invention as embodied in the formulations of Example O and P as opposed to Example Series A. The formulation of Example Series O has 1/3 less quaternary surfactant than the Example Series A composition, yet exhibits significantly more tensile reduction at the same add-on levels (4/23 or about 17% more). This is contrary to conventional wisdom wherein it was believed that

tensile reduction would decrease with decreasing quaternary surfactant usage. One would have expected the formulation of Example O to exhibit significantly less tensile reduction than the formulation of Example Series A and the fact it exhibits more tensile reduction was an unexpected, surprising and very useful result.

6. Likewise, the formulation of Example P would have been expected to exhibit less tensile reduction than the formulation of Example Series A at the same add-on rates because it also contains less quaternary surfactant. The contrary result shown in the above table is again unexpected.

7. That the nonionic surfactant used in Formula O is primarily a PEG dioleate as is the nonionic surfactant used in Example Series A; however, the PEG dioleate surfactant used in Formula O has a higher HLB than the PEG dioleate used in Example Series A because the PEG content is higher. Note that the quaternary surfactants used in Example O and Example Series A are identical. By virtue of its composition, the use of Formula O is within the scope of Claim 1 of the above-noted patent application.

8. That the nonionic surfactant used in Formula P was a PEG-400 monooleate ester (a monoalkylated nonionic surfactant) having a hydrophobic carbon chain length of 18 and an HLB value of 11.8. The use of debonder Formulation P is within the purview of Claim 1, subparagraph (c) by virtue of these characteristics and the presence of the nonionic surfactant in the mixture within the range of from 25 to 60 weight percent based on the total amount of surfactant.

9. That in the Series A experiment detailed above, the nonionic surfactants used ~~were a PEG-6-dioleate ester (a dialkylated nonionic surfactant) having a~~ hydrophobic carbon chain length of 18 and a PEG-6-2 tridecanol (a monoalkylated nonionic surfactant) having a hydrophobic carbon chain length of 13. This nonionic surfactant mixture had an HLB value of 9.8. By virtue of these characteristics, the composition is excluded from Claim 1 of the application which calls for HLB values of greater than 10 for such compounds in the mixture (*see*

Claim 1, subparagraphs a and d). The debonder formulation of Example Series A is also excluded from Claim 1 because it has less than 25 percent by weight nonionic surfactant, specifically, it had 20% by weight nonionic surfactant.

10. The undersigned Declarant declares further that all statements made herein of his own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code and that such willful false statements may jeopardize the validity of the subject application or any patent issuing thereon.

Dated 5-10-03

Bruce J. Kokko

CLAIMS ON APPEAL

1. In a process for making an absorbent sheet material from a web of fibrous material consisting of 100% by weight cellulosic recycle material, the improvement which comprises treating the fibrous material with a debonding composition which includes a synergistic combination of:

(a) a quaternary ammonium surfactant component which includes an imidazolinium salt; and

(b) a nonionic surfactant component present in said debonding composition in an amount of from about 25 to about 60 weight percent based on the combined weights of said nonionic surfactant component and said quaternary ammonium surfactant component;

wherein said nonionic surfactant component comprises a surfactant selected from the group consisting of group c, d or e and wherein group:

(c) are monoalkylated nonionic surfactants comprising alkoxylated fatty acids or alkoxylated fatty alcohols having an **HLB** value of greater than about 10 wherein said fatty acids and fatty alcohols have 12 carbon atoms or more;

(d) are dialkylated nonionic surfactants comprising alkoxylated fatty acids or alkoxylated fatty alcohols with an **HLB** value of greater than about 10 wherein said fatty acids or fatty alcohols have about 16 carbon atoms or more;

(e) are dialkylated nonionic surfactants comprising alkoxylated fatty alcohols or alkoxylated fatty acids having an **HLB** value of less than about 10 and wherein said fatty alcohols and fatty acids have about 16 carbon atoms or less;

wherein further the debonding composition is operable to reduce the tensile strength of said sheet by at least about 25 percent by application to said recycle fibrous material at a treatment level of 1 mole of said quaternary ammonium surfactant component per ton of recycle fibrous material.

2. The improvement according to claim 1, wherein debonding composition is operable to reduce the tensile strength of said sheet by at least about 40 percent by application to said fibrous material at a treatment level of 3 moles of said quaternary ammonium surfactant component per ton of fibrous material.

3. The improvement according to claim 1, wherein from about 1 to about 16 pounds of said debonding composition are employed per ton of absorbent sheet material produced.

4. The improvement according to claim 1, wherein from about 3 to about 8 pounds of said debonding composition are employed per ton of absorbent sheet material.

5. The improvement according to claim 1, wherein from about 4 to about 6 pounds of said debonding composition are employed per ton of absorbent sheet material.

7. The improvement according to claim 1, wherein said nonionic surfactant component is present in said debonding composition in an amount of from about 30 to about 50 weight percent based on the combined weights of said nonionic surfactant component and said quaternary ammonium surfactant component.

8. The improvement according to claim 1, wherein said recycle fiber has an ash content greater than about 0.75 percent by weight.

9. The improvement according to claim 8, wherein said recycle fiber has an ash content greater than about 1 percent by weight.

10. The improvement according to claim 9, wherein said recycle material has an ash content greater than about 2 percent by weight.

13. The improvement according to claim 1, wherein said nonionic surfactant component is an ethoxylated fatty acid.

14. The improvement according to claim 13, wherein said nonionic surfactant component is a polyethylene glycol ester of a fatty acid.

15. In a process for making an absorbent sheet material from a web of fibrous material consisting 100% by weight of cellulosic recycle material, the improvement which comprises treating the fibrous material with a debonding composition which includes a synergistic combination of:

(a) a quaternary ammonium surfactant component which includes an imidazolinium salt; and

(b) a nonionic surfactant component present in said debonding composition in an amount of from about 25 to about 60 weight percent based on he combined weights of said nonionic surfactant component and said quaternary ammonium surfactant component;

wherein said nonionic surfactant component comprises a surfactant selected from the group consisting of group c, d or e and wherein group:

(c) are monoalkylated nonionic surfactants comprising alkoxylated fatty acids or alkoxylated fatty alcohols having an **HLB** value of greater than about 10 wherein said fatty acids and fatty alcohols have 12 carbon atoms or more;

(d) are dialkylated nonionic surfactants comprising alkoxylated fatty acids or alkoxylated fatty alcohols with an **HLB** value of greater than about 10 wherein said fatty acids or fatty alcohols have about 16 carbon atoms or more;

(e) are dialkylated nonionic surfactants comprising alkoxylated fatty alcohols or alkoxylated fatty acids having an **HLB** value of less than about 10 and wherein said fatty alcohols and fatty acids have about 16 carbon atoms or less;

wherein further the debonding composition is operable to reduce the tensile strength of said sheet by at least about 40 percent.

18. In a process for making an absorbent sheet material from a web of fibrous material consisting predominately of cellulosic recycle fiber, the improvement which comprises treating the fibrous material with a debonding composition which includes a synergistic combination of:

(a) a quaternary ammonium surfactant component which includes an imidazolinium salt; and

(b) a nonionic surfactant component wherein said nonionic surfactant component is present in said debonding composition in an amount of from about 25 to about 60 weight percent based on he combined weights of said nonionic surfactant component and said quaternary ammonium surfactant component;

wherein said nonionic surfactant component comprises a surfactant selected from the group consisting of group c, d or e and wherein group:

(c) are monoalkylated nonionic surfactants comprising alkoxylated fatty acids or alkoxylated fatty alcohols having an **HLB** value of greater than about 10 wherein said fatty acids and fatty alcohols have 12 carbon atoms or more;

(d) are dialkylated nonionic surfactants comprising alkoxylated fatty acids or alkoxylated fatty alcohols with an **HLB** value of greater than about 10 wherein said fatty acids or fatty alcohols have about 16 carbon atoms or more;

(e) are dialkylated nonionic surfactants comprising alkoxylated fatty alcohols or alkoxylated fatty acids having an **HLB** value of less than about 10 and wherein said fatty alcohols and fatty acids have about 16 carbon atoms or less.

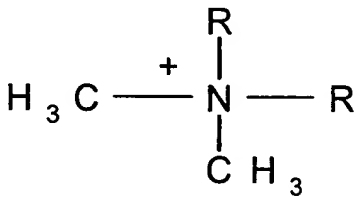
19. The improvement according to claim 18, wherein said nonionic surfactant includes a fatty acid or fatty alcohol component with at least about 18 carbon atoms.

20. The improvement according to claim 18, wherein said nonionic surfactant comprises a fatty acid monoester of a polyethylene glycol.

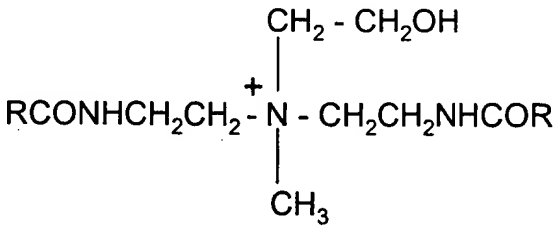
31. In a process for making an absorbent sheet material from a web of fibrous material consisting 100% by weight of cellulosic recycle fiber, the improvement which comprises treating the fibrous material with a debonding composition which includes a synergistic combination of:

(a) a quaternary ammonium surfactant component comprising a surfactant compound selected from the group consisting of:

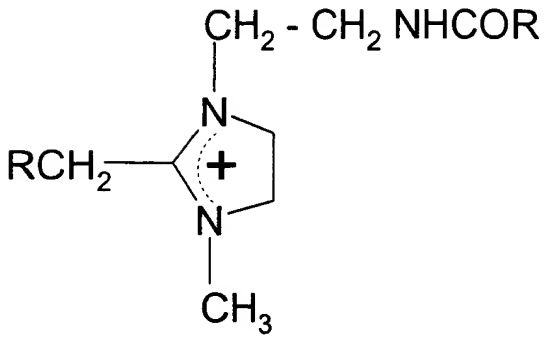
a dialkyldimethylammonium compound of the formula:



a bis-dialkylamidoammonium compound of the formula:



; and a dialkylmethylimidazolinium compound of the formula:



wherein each R may be the same or different and each R indicates a hydrocarbon chain, saturated or unsaturated, having a chain length of from about twelve to about twenty-two carbon atoms; and wherein said compounds are supplied to the fibrous material with a suitable anion; and

(b) a nonionic surfactant component;

wherein said nonionic surfactant component comprises a surfactant selected from the group consisting of group c or d and wherein group:

(c) are monoalkylated nonionic surfactants comprising alkoxylated fatty acids or alkoxylated fatty alcohols having an **HLB** value of greater than about 10 wherein said fatty acids and fatty alcohols have 12 carbon atoms or more;

(d) are dialkylated nonionic surfactants comprising alkoxylated fatty acids or alkoxylated fatty alcohols with an **HLB** value of greater than about 10 wherein said fatty acids or fatty alcohols have about 16 carbon atoms or more;

with the proviso that the debonding composition is operable to reduce the tensile strength of said sheet by at least about 25 percent by application to said fibrous material at a treatment level of 1 mole of said quaternary ammonium surfactant component per ton of fibrous material and further, wherein said nonionic surfactant component is present in said debonding composition in an amount of from about 25 to 60 weight percent based on the

combined weights of said nonionic surfactant component and said quaternary ammonium surfactant component.

32. The improvement according to claim 31, wherein said surfactant compound is a alkyl(enyl)amidoethyl-alkyl(enyl)-imidazolinium compound.

33. The improvement according to claim 31, wherein said suitable anion is methylsulfate.

34. The improvement according to claim 31, wherein said nonionic surfactant component comprises the reaction product of a fatty acid or fatty alcohol with ethylene oxide.

35. The improvement according to claim 34, wherein said nonionic surfactant component comprises a polyethylene glycol ester of a fatty acid.

56. The improvement The improvement according to Claim 18, wherein said fibrous material is at least about 75 percent by weight of cellulosic recycle material.

57. The improvement according to Claim 56, wherein said fibrous material is 100 percent by weight of cellulosic recycle material.

58. The process according to Claim 18, wherein the nonionic surfactant is selected from group c.

59. The process according to Claim 18, wherein the nonionic surfactant is selected from group d.

60. In a process for making an absorbent sheet material from a web of fibrous material consisting predominately of cellulosic recycle fiber, the improvement which comprises treating the fibrous material with a debonding composition which includes a synergistic combination of:

(a) a quaternary ammonium surfactant component; and

(b) a nonionic surfactant component present in said debonding composition in an amount of from about 25 to about 60 weight percent based on he combined weights of said nonionic surfactant component and said quaternary ammonium surfactant component;

wherein said nonionic surfactant component comprises a surfactant selected from the group consisting of group c or d and wherein group:

(c) are monoalkylated nonionic surfactants comprising alkoxylated fatty acids or alkoxylated fatty alcohols having an **HLB** value of greater than about 10 wherein said fatty acids and fatty alcohols have 12 carbon atoms or more; and

(d) are dialkylated nonionic surfactants comprising alkoxylated fatty acids or alkoxylated fatty alcohols with an **HLB** value of greater than about 10 wherein said fatty acids or fatty alcohols have about 16 carbon atoms or more.

61. The improvement according to Claim 60, wherein said nonionic surfactant component is present in said debonding composition in an amount of from about 30 to about 50 weight percent based on the combined weights of said nonionic surfactant component and said quaternary ammonium surfactant component.